

# SCHEDULING SEQUENTIAL DATA PREFETCHES IN A PREEXISTING LRU CACHE

## ABSTRACT OF THE INVENTION

A shared system memory, such as a cache, buffers Input/Output (I/O) requests between one or more host computers and one or more data storage servers or devices. The cache may be configured to operate natively as a least-recently-used (LRU)-only cache and may be optimized for random data accesses. Data buffered by the cache may be part of a sequential data stream for which prefetching data is desirable. A remote prefetch module is provided between the cache and the host to conduct prefetching without internally modifying the cache. The remote prefetch module maintains a model of the cache. Using the model, the prefetch module anticipates whether data is likely to be part of a sequential stream of data passed between a host and a data storage device. If so, the prefetch module schedules a prefetch of the data. The prefetch may be achieved by sending an I/O request to the data server or device. The remote cache model minimizes impacts to random access data hits by minimizing the likelihood of prefetching data which is not used and further enhances the efficiency of the successful identification of likely prefetch candidates.

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